

IDAPA 37.03.09
Negotiated Rule Making
January 4, 2007

Negotiated Rule Making commenced on Thursday, January 4, 2007 at 8:30 AM MST. This meeting was conducted using the University of Idaho's teleconferencing system, and stakeholders participated from locations in Twin Falls, Coeur d'Alene, Idaho Falls, and Boise. The complete meeting was recorded and is summarized below.

1. Don Saraceno, the Manager of University of Idaho's Video Group joined the meeting by audio conference. He apologized to the Committee that U of I had accidentally erased the December meeting. He also apologized for losing the audio for the October meeting.
2. David Tuthill discussed some recent changes at IDWR.
3. David Tuthill has been named Acting Director and Gary Spackman has been named Acting Administrator for Water Resources.
 - a. IDWR will conduct a national search for a new Director.
 - b. He thanked the committee for its work to revise the Standard.
4. Chuck Galloway outlined future milestones for revision of the Standard.
 - a. The final meeting is planned for January 26, 2007.
 - b. The proposed rule would be submitted to the Idaho Water Resources Board in May.
 - c. The proposed rule would be published in the July Administrative Bulletin.
 - d. The proposed rule would be submitted to the Legislature in January 2008.
5. Tom Neace IDWR reported on the recent NGWA conference in Las Vegas:
 - a. The Nebraska Grout study was relevant to Idaho's effort to seal wells.
 - b. PVC manufacturers provided important information about installation of PVC casing and liners.
6. The Committee discussed disinfection and sanitizing of wells and equipment.
 - a. Guy Weech, Twin Falls, stated that NGWA did not recommend pre-sanitization, but recommended chlorination after well installation. He stated that pre-chlorination of drilling equipment and materials would be a waste.
 - b. John Sharkey, IDWR, stated that he would remove "..and disinfect" from line 920.
 - c. Ed Squires, Hydro Logic Inc, stated:
 - i. Pre-chlorination of pipe and filter packs is not needed. New supplies do not normally need chlorination.
 - ii. But, drilling equipment (hoses, tanks, drill steel) should be disinfected to prevent movement of iron bacteria and fecal bacteria from one well to the next well.
 - d. Stakeholders discussed the occurrence and movement of iron bacteria.
 - i. Guy Weech, Twin Falls, stated that Fe-bacteria are residuals and drilling simply provides an environment to encourage their growth.
 - ii. Gary Duspiva quoted Dave Hansen that iron bacteria cannot be transported from one well to another.
 - iii. Rob Whitney, IDWR, stated that if materials are contaminated they must be decontaminated prior to use.
 - iv. Ed Squires disagreed with others concerning the transfer of iron bacteria from one well to another, and believes iron bacteria can be moved from one well to another.

- v. Lynn Bartholomew, NW HydroFracture, stated anything inserted into the hole must be clean. pH should be considered to ensure proper sanitization.
 - vi. Tony Hackett stated that there are different regions in the state and IDWR cannot apply state-wide rules. "One size fits all" (e.g. PVC, seals, etc) cannot work. IDWR must recognize regional differences in its rules.
- 7. Bob Oliver, CETCO, presented a PowerPoint presentation summarizing the Nebraska Grout Study. A copy of the presentation will be available at the IDWR website. To summarize:
 - a. Seals below the water table installed by slurry or chip were stable.
 - b. Seals above the water table cracked.
 - c. Percent solids in slurries did not materially affect seal stability.
 - d. Elevated calcium, sodium, and contaminants not factors in seal stability.
 - e. Organic carbon, salt, moisture, cation exchange capacity have statistically significant relationship with seal stability.
 - f. Dry conditions in the vadose zone (unsaturated zone) cause the cracking of seals above the water table. The study showed that bentonite chips performed best as seal material in the unsaturated zone.
 - g. Nebraska will probably revise its rules to require installation of chips above the water table.
- 8. Ed Squires, Hydro Logic Inc, presented information about drive shoe seals and cross-contamination of a Boise aquifer at Capital Water System #5 and from a Test Well screened across four distinct sub-aquifers.
 - a. General comments on ground water movement.
 - i. Ground water is always in motion, flowing from recharge to discharge areas.
 - ii. Well installation interrupts and changes groundwater flow, particularly when installed by air rotary or cable tool techniques.
 - iii. Movement of groundwater is difficult to observe behind cased wells.
 - b. Test Well #4.
 - i. Four distinct sub-aquifers were isolated. Each aquifer had different heads (i.e. the water level in each sub-aquifer was different.)
 - ii. Each sub-aquifer contained groundwater of different temperature and water chemistry.
 - iii. Down-hole video revealed that groundwater did move up and down inside the well casing and also moved up and down the outside of the casing (seen through holes corroded in the casing).
 - c. Capital Water System #5. This well was investigated in detail because it contained elevated concentrations of TCE and the well owner required additional water for his customers. After down-hole video survey and examination of water chemistry, Hydro Logic concluded that TCE-contaminated water was pumped from the upper, alluvial aquifer because the drive-shoe seal did not seal upper aquifers from lower aquifers. Hydro Logic generalized:
 - i. Drive-shoe seals might be acceptable in consolidated formations, but are unacceptable in unconsolidated formations.
 - ii. Drill and drive is not suitable for unconsolidated formations.
 - iii. Air rotary and cable tool drilling is suitable only for consolidated formations.
 - iv. Poorly constructed wells are a threat to the groundwater resources of the state because they allow water of different chemistries and qualities to mingle.

- v. Wells need to be constructed with good seals so that when the well is no longer needed, it can be abandoned easily and the aquifer restored.
- 9. Rob Whitney, IDWR began the discussion on well seals following lunch. Mr. Whitney began the discussion with what he described as the Ideal Well. The ideal well meets the language in the code and regulations which prevents waste, contamination and co-mingling of the resource. Committee discussed well seals and various other topics.
 - a. Rob Whitney, IDWR, stated that, after well installation, the resource should be protected in equal measure to the situation before drilling.
 - b. Roger Dittus, United Water Idaho, stated that protecting the resource requires all impervious layers disrupted by the drilling process must be resealed after drilling.
 - c. Rob Whitney stated that he had observed efforts to test drive-shoe seals, but as the video demonstrated, these seals fail.
 - d. Ed Squires stated that clay sheaths created from placing a full seal bentonite around the casing spreads the corrosive galvanic forces, thereby reducing corrosion. Corrosion is most common at welds and where pipe telescopes into other casing strings. Drive-shoe seals are good places to install bentonite, as the underlying clay will support the seal.
 - e. Roger Buchanan, Andrew Well Drilling, Idaho Falls, stated that in Eastern Idaho, almost all wells are drilled with air rotary. Water levels are 120-200 ft below land surface. Mud rotary will not work, due to lost circulation problems. One ideal well seal standard will not work for all geology. There should be surface seals and formation seals.
 - f. Rob Whitney stated emphatically that IDWR was not recommending or even considering requiring use of mud rotary or any other specific drilling technique.
 - g. Ed Squires stated that it is possible to drill into artesian aquifers and to install grout. Mud and cable tool drilling are applicable techniques. Oil field techniques to control mud density and weight can be used when artesian pressures are high.
 - h. Brett McCarty described the use of surface seals set to 18 ft, with casing driven into bedrock at about 60 ft, open hole below 60 ft. PVC liner in the open hole. A shale trap might be installed on the PVC liner below the casing if water leaked into the hole. He did not think it was necessary to sand-pack the PVC liner.
 - i. Ed Squires stated that there was not much more needed to protect the aquifer.
 - j. Chuck Galloway quoted the NGWA Manual, paragraph 4.4.2, that stated the annular space should be sealed. NGWA leans toward full seals and sand packs.
 - k. Guy Weech described an irrigation well he is currently drilling and asked how it should be sealed based on earlier discussions. The well in question has four layers of basalt and interbeds of gravel and cinders. Water level is expected at 480 ft, but the well may be drilled to 1300 ft. He wanted some guidance on where he should seal this well if all impervious zones are to be restored.
 - l. Brett McCarty wondered why it was necessary to seal a well from the surface to the production zone when first water occurred at 480 ft.
 - m. Mr. Squires pointed out that the dense center of a basalt flow would be ideal for seal placement. A shale trap could be placed at the center of the flow and grout installed to prevent movement of water up and down the borehole.
- 10. The Committee commenced review and comment on the January 4 draft rule.
 - a. Guy Weech stated that, at Line 332, the 25 ft separation from existing wells was too strict, particularly in developed areas. Guy indicated that vertical separation as well as horizontal separation distances should be considered. IDWR stated that the pre-existing well should be abandoned, so that there should be no issue

regarding separation. In addition, the driller could file for a waiver in the process for site specific conditions.

- b. Guy Weech stated that, at Line 369, the 18-in. extension above grade was too strict. He could not get is rig down unless he cut the casing to 12-in. and then welded a 6-in. extension onto the casing. IDWR stated that it would consider a 12-in. extension. The proposal to weld an additional 6 inches onto the casing would meet the proposed language.
- c. Ed Squires stated that full depth seals would make separation distances irrelevant.
- d. John Sharkey pointed out additional language regarding waivers at Line 346.
- e. Gary Duspiva stated that the 50-ft separation distance from water bodies (Line 332) should be reduced to 25 feet. Some water bodies are intermittent and contribute minimal source water and some are concrete lined ditches. Mr. Pippett pointed out that there is a 15-ft right of way from the centerline of irrigation ditches.
- f. Guy Weech suggested that the requirements for casing of minimum wall thickness and depths of installation at Line 396 are too strict. In response, Chuck Galloway pointed out that the proposed requirements were less stringent than recommended by NGWA.
- g. Guy Weech suggested that the minimum well diameters suggested in Rule 41 are too strict. Ed Squires concurred. John Sharkey IDWR stated that the chart was extracted from the NGWA manual, but the IDWR would consider relaxing the requirement.
- h. Dale Pippett stated that he did not like "...could" at Line 218. John Sharkey replied that IDWR legal staff had required this word and promised to check on the rationale.
- i. Brett McCarty suggested changes to the terms "...potentially hazardous tanks" at Line 331. Discovery of these structures should not be the driller's responsibility.
- j. Mr. Lynn Bartholomew raised questions about the setback distance (Line 331) from existing wells. He stated that existing wells should be cleaned, rehabilitated, and disinfected before abandonment. Otherwise, the new well may capture bacteria from the old well and contaminate the new well.
- k. Ed Squires stated that he normally installed wells on 7 ft, 10 ft, and 15 ft spacing. Full depth seals makes the setback and spacing issues irrelevant.
- l. Brett McCarty stated that 25-ft seemed reasonable.
- m. Brett McCarty raised the issues of the language "..for the life of the well" at Line 387. He did not believe drillers should be responsible for wells 30, 40 , 50 years after construction. IDWR agreed that the well owner carries much of the responsibility for ensuring that any modification to their well meets the current standard.
- n. Lynn Bartholomew seriously questioned the rationale behind Rule 40, Standards for PVC Pipe Casing and Liner.
 - i. PVC installed by dropping into the hole is generally a big problem but otherwise it holds up fine without centralizers or support.
 - ii. He stated emphatically that requirement to install a filter pack into the borehole means that the well can never be repaired or re-worked to increase yield. This would be a very limiting action with no benefits to the resource and serious restrictions for future well development such as hydro-fracturing.
- o. John Sharkey IDWR replied that PVC manufacturers stated that the product was designed for fully supported installation, but IDWR wanted industry input.

- p. Lynn Bartholomew stated that sand-packing some PVC wells may be required, but a blanket, state-wide rule for every installation was wrong.
 - q. Gary Duspiva and Brett McCarty questioned Rule 53, Requirement to Repair or Replace Surface Seals. In response, Jim Rush, Rocky Mountain Environmental, explained that this rule was proposed, because professionalism requires bringing wells into compliance to protect the resource. Brett McCarty concurred, but suggested that this requirement be imposed on the well owner in Rule 314. Guy Weech suggested that this requirement (i.e., install seal in unsealed wells) be applied only to areas of gravel or where drillers used puddling clay. Ed Squires suggested that seals be required only where they could be installed.
11. The Committee started discussion of Rules 50 through 54 and 60 through 63, all of which address seals, seal materials, and seal installation.
- a. John Sharkey stated that the language in the January 4, 2007 draft had not been reviewed by IDWR, but was the language from the October straw-man draft.
 - b. Stakeholders questioned the need to install seals to great depths below grade, where water levels might be hundreds of feet below grade.
 - c. John Sharkey suggested that subcommittees of stakeholders prepare seal requirements based on the diverse geology of the state. He suggested using the IDWR map of aquifers across the state as the basis for the site-specific requirements.
 - d. Ed Squires suggested using existing wells to identify areas where specific sealing plans could be prepared.
 - e. Ed Squires suggested that these site-specific sealing plans could be prepared quickly, before the May 2007 deadline. Some stakeholders agreed, but many disagreed, suggesting more time would be required.
 - f. Chuck Galloway indicated that IDWR is committed to submitting proposed revision to the Rule to the January 2008 legislature, even if it meant minimal changes to some portions of the rule.
 - g. Mark Hiddleston, Hiddleston Drilling, stated that the Standard should be revised, as good progress had been made. Rob Whitney IDWR concurred.
12. At 4:15 PM, the Facilitator summarized several key points made during the meeting:
- a. PVC casing and liner issues remain open and unresolved with significant concern raised about the effectiveness of more restrictive changes.
 - b. Drive shoe seals were identified as inadequate by many because they do not create sufficient sealing of surface zones.
 - c. Aquifers not part of the production zone should be sealed from the well and well bore.
 - d. Sealing requirement should consider confined verses unconfined aquifers.
 - e. Minimum standards for surface seals should be specified.
 - f. Many stakeholders agreed that standards for sealing of wells and boreholes might best be based on geologic provinces or on identified aquifers across the state.

The meeting adjourned at 4:30 PM.

Next meeting and schedule.

The Committee is scheduled to meet on Friday, January 26, 2007, using the University of Idaho video conferencing facilities. Chuck requested extending the meeting time to 5:30 rather than 4:30 to accommodate the work that needs to be completed in this final session.